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PALEONTOLOGY.—*Linter*, a new taxodont genus from the Upper Cretaceous of Texas.¹ LLOYD WILLIAM STEPHENSON, U. S. Geological Survey.

An elegant little taxodont bivalve mollusk from the Nacatoch sand of the Navarro group of Texas appears to belong to a heretofore undescribed genus and species for which the name *Linter acutata* is now proposed. This shell has been found at three localities in Navarro County.

The genus is also represented by one specimen belonging to a distinct species, here named *Linter burrana*, from the San Miguel formation of Maverick County, Texas, a formation stratigraphically lower than the Nacatoch sand, and correlated with the upper part of the Taylor marl of central Texas.

These species belong to a group of taxodont shells having vertically striated ligamental areas, to which F. Stearns MacNeil, in an accompanying paper in this JOURNAL, and in a paper now in press as United States Geological Survey Professional Paper 189-A, applies the new family name Noetidae, based on the genus *Noetia* Gray, and the new subfamily name Trinacriinae, based on the genus *Trinacria*.

Genus LINTER Stephenson, n. gen.

Type species: *Linter acutata* Stephenson.

Etymology: Latin *linter*, a boat or skiff.

This genus is characterized by its long and sharply acute umbonal ridge, its short *Arca*-like hinge, and its broadly excavated triangular cardinal area situated mainly back of the beak; at the forward end of the area under the beak is a small, triangular, amphidetic, ligamental area, faintly striated at right angles to the hinge line; the rest of the area is smooth with only incremental lines showing. The hinge is slightly arched and is set with 10 or more irregular, short, transverse to slightly oblique teeth, separated by deep sockets.

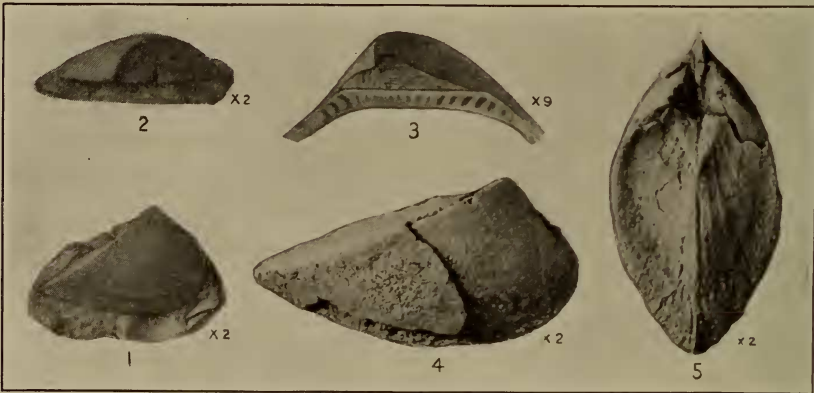
The genus is represented by 8 specimens from Texas, 7 from the Nacatoch sand, described below under the specific name *Linter acutata*, and 1 from the stratigraphically lower San Miguel formation of Maverick County, described under the name *Linter burrana*.

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Linter acutata Stephenson n. sp.

Figs. 1-3

Shell small, subtriangular in outline, strongly convex. Beaks prominent, opisthogyrate, slightly separated, situated about $\frac{3}{10}$ the length of the shell from the anterior extremity. The umbonal ridge is sharply angular, the median surface meeting the postero-dorsal slope at an acute angle, the crest of the ridge slightly overhanging as it approaches the beak. A broad, very shallow radiating depression extends to the postero-ventral margin in front of the umbonal ridge. The umbonal ridge stands higher than any other part of the shell, and from it the surface rounds down gently to the anterior and ventral margins; the posterodorsal slope is long, broad, and broadly excavated, the concavity being slightly modified by a broad median swell; this surface meets the cardinal area at a broad, obtuse angle. The cardinal



Figs. 1-5.—*Linter acutata* Stephenson. 1, side view of the holotype, a right valve, $\times 2$ (U.S.N.M. no. 75974). 2, dorsal view of the holotype, $\times 2$. 3, an enlarged, somewhat generalized drawing of the hinge and cardinal area of the holotype, $\times 9$. Figs. 4, 5.—*Linter burrana* Stephenson. 4, side view of the holotype, $\times 2$ (U.S.N.M. no. 75978). 5, dorsal view of the holotype, $\times 2$.

area is triangular and broadly excavated; its lower straight edge is about 2.25 mm long in the holotype, and its posterior edge meets the posterodorsal slope at an obtuse angle; the anterior edge is partly concealed by the incurving of the sharp tip of the beak. Under the beak is a small, shallow, triangular, ligamental pit, which bears 5 or 6 obscure, transverse striations; the rest of the area is smooth with the exception of fine incremental lines. The hinge plate is short and narrow; as seen on the holotype it is obscure but appears to be set with 10 or more irregular taxodont teeth which centrally are nearly transverse to the hinge line but toward the ends become more or less oblique; the anterior teeth are chevron-shaped. The inner surface is partly exposed posteriorly in one shell and exhibits radial striae which are strongest near the pallial line. The anterodorsal margin is steeply inclined but curves below into the regularly rounded anterior margin, which in turn curves into the broadly convex to nearly straight ventral margin; the long, nearly straight, though slightly sinuous, posterodorsal margin meets the ventral margin at a sharp acute angle, forming a pointed extremity; the posterodorsal margin is strongly inclined forward and meets the hinge line at a very wide obtuse angle. The surface is marked with fine,

somewhat irregular incremental lines, crossed by very fine, obscure, radiating ridges which are a little stronger and wider apart on the antero- and posterodorsal slopes; the crossing of the two sets of lines tends to form a faint punctate sculpture; these features are too fine to show clearly in the illustration, and vary in strength on different individuals.

Dimensions of the holotype, a right valve: Length, 11.3 mm; height, 6.8 mm; convexity, 3 mm.

Types: Holotype, a right valve, U.S.N.M. no. 75974; 2 paratypes, U.S.N.M. no. 75975; 1 paratype, U.S.N.M. no. 75976; 4 paratypes, U.S.N.M. no. 75977.

Distribution in Texas.—Navarro group, Nacatoch sand: Public road south of the St. Louis Southwestern (Cotton Belt) Railroad, about 5 miles south-southwest of Corsicana, Navarro County (holotype and 2 paratypes, U.S. G.S. coll. 7573); from a small branch west of the Corsicana-Chatfield road, at the north end of M. R. and M. J. Thompson's property, 2 miles north of Corsicana, Navarro County (1 paratype, U.S.G.S. coll. 9553, collected by O. B. Hopkins in 1916); borrow pit just east of U. S. Highway 75, at foot of the north-facing slope of Chambers Creek valley, 4 miles north of the Court House at Corsicana, Navarro County (4 paratypes, U.S.G.S. coll. 17366).

Linter burrana Stephenson n. sp.

Figs. 4, 5

One incomplete individual from the San Miguel formation, Maverick County, differs from *Linter acutata* mainly in its proportionately greater length and in its greater size, being nearly twice as long. In *L. acutata* the height is about 0.60 or 0.61 times the length, whereas in *L. burrana* the height is about 0.53 times the length. The specimen is an internal mold of both valves with the thin shell peeled off and lost from more than half the surface; the portion of the shell that remains is badly corroded, but shows the growth lines fairly completely; the posterodorsal slopes also show a series of fine, obscure radiating lines which are strongest near the acutely angular umbonal ridge, and become fainter inward toward the margin. The shell is gone from the beaks, and also from the forward portion of the cardinal area. The posterodorsal slopes are long, broad, broadly excavated, and extend with a moderately steep descent to the posterior extremity. The anterior adductor scar is proportionately small and elongated and is bordered posteriorly by a narrow radial internal rib that appears on the mold as a groove. The mold bears the impressions of fine, somewhat irregular, radiating, internal lines that are strongest toward the marginal ends.

Dimensions: Length 20.8 mm, height 11 mm, diameter 10.8 mm.

The species is accompanied at its type locality by a goodly number of poorly preserved pelecypods and gastropods (U.S.G.S. colls. 1887 and 8233), most of which have been only generically identified; among them are shells of *Ostrea saltillensis* Böse, and *Polinices rectilabrum* (Conrad).

Holotype: U.S.N.M. no. 75978.

Occurrence.—San Miguel formation (upper Taylor age): From layers of indurated calcareous sandstone in the north-facing slope of Sauz Creek, just north of the abandoned stone headquarters house of the old Burr Ranch, 2 miles northwest of Paloma siding, 23 miles north by east of Eagle Pass, Maverick County, Texas (U.S.G.S. coll. 8233).

PALEONTOLOGY.—*The systematic position of the pelecypod genus Trinacria.*¹ F. STEARNS MACNEIL, U. S. Geological Survey. (Communicated by LLOYD W. STEPHENSON.)

During the course of some researches into the structure and evolution of the ligament of arcid pelecypods the writer was fortunate enough to find, in a collection recently acquired by the U. S. National Museum, a few specimens of *Trinacria cancellata* (Deshayes) from the Calcaire Grossier, on which the fibrous ligament was perfectly preserved. These throw new light on the relationships of this genus. In addition some specimens of a new genus from the Upper Cretaceous of Texas, collected and described in manuscript by L. W. Stephenson of the U. S. Geological Survey, were recognized as representing a primitive type of Trinacriinae. It is the purpose of this paper to make the structure of the ligament of *Trinacria* known, to outline briefly the evolution of the genus, and to delimit the subfamily Trinacriinae which was recently proposed by the writer in U. S. Geological Survey Professional Paper 189-A.

The writer is indebted to the authorities of the U. S. National Museum for the privilege of studying Museum collections and to Dr. L. W. Stephenson for making the name of his Upper Cretaceous genus, *Linter*, available under separate title in this publication.

NOMENCLATURE

The availability of the name *Trigonocoelia* Nyst and Galeotti (1835) for the group of shells generally referred to as *Trinacria* Mayer (1868) has been a subject for difference of opinion since Deshayes usage of the former in 1860. Wood and Stoliczka expressed the opinion, which was probably shared by Conrad and Newton, that, inasmuch as the original list for *Trigonocoelia* contained two distinct genera, and one of them, the "pectunculacés" species, belonged to the genus *Limopsis* Sasso (1827) (type by monotypy, *Arca aurita* Brocchi), the name *Trigonocoelia* was still available for the "nuculacés" species. Mayer was apparently unaware that the original list for *Trigonocoelia* was divided into shells of two types, for he accused Deshayes of applying the name to an entirely different type of shell than that for which it was proposed. Mayer believed that Nyst and Galeotti's name was proposed as a substitute for *Limopsis*, because the latter was a hybrid name, and accepted the substitution on that

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